Biology 101, Section 11: Elements of Biology (3 units)

Location: LH-402
Meeting Times: Monday & Wednesday 2:30 PM – 3:45 PM

Instructor: Dr. Carol Chaffee
E-mail: cchaffee@fullerton.edu
Phone: (657) 278-7098
Office: McCarty Hall 207H
Office hours:
  M 1 – 2 PM
  W 11 AM – 12:30 PM
  Th 2 – 3:30 PM

Technical support (Help Desk): (657) 278-8888 or StudentITHelpDesk@fullerton.edu.

COURSE COMMUNICATION

- All course announcements are sent through TITANium, which only uses CSUF email accounts. Therefore, you must check your CSUF email on a regular basis (several times a week) for the duration of the course.
- Email is the absolute best way to reach me, and is essentially the only way to reach me on weekends or holidays. I have an email filter setup to highlight emails from students in my classes, so you will get the fastest response if you start the subject line of each message with “BIOL 101:”.
- Please make sure to include your name in the body of all emails.
- If you leave me a voice mail (once my office phone is available), please make sure to include your name, a call back number, and the best times to call.

RESPONSE TIME

I will make every effort to respond to email or voice mail within 24 hours during the week, and will usually be able to respond within 48 hours over weekends or holidays. If I’ll be unavailable at any time during the semester (unlikely), I will send a message through TITANium with instructions for getting assistance from alternate sources.
COURSE DESCRIPTION, OBJECTIVES & LEARNING GOALS

Biology 101 is a General Education course in the B.2 Life Science area. The goals of this course are that students will learn the following major scientific ideas:

a. Living things are made of smaller structures whose functions enable the organism to survive.

   **Biology 101 students should be able to:**
   1. Define the characteristics of life
   2. Differentiate between the main classes of biologically important molecules
   3. Summarize cell theory
   4. Explain the processes associated with cell growth & division
   5. Compare & contrast characteristics of prokaryotic & eukaryotic cells
   6. Relate cell structure to cell function
   7. Explain how an organism maintains homeostasis
   8. Organize functions within levels and explain relationships between levels of biological organization (cell, tissue, organ, organ system, organism)

b. Living things depend on each other and the physical environment as they interact to obtain, change, and exchange matter and energy.

   **Biology 101 students should be able to:**
   1. Describe how energy from the sun drives most activities on the earth’s surface
   2. Sketch the flow of energy & matter through higher levels of biological organization
   3. Explain the ways in which organisms may interact
   4. Identify factors that affect population growth and decline
   5. Identify factors that affect ecological organization at the community & ecosystem level
   6. Assess the role of humans in natural systems
   7. Describe & give examples of the value of biodiversity & the natural world

c. The great diversity of living things is the result of billions of years of evolution of organisms through the mechanisms of heredity, random change, and natural selection.

   **Biology 101 students should be able to:**
   1. Illustrate the Central Dogma
   2. Explain & apply the basic principles of inheritance
   3. Summarize the evidence for evolution
   4. Describe how different processes (e.g., mutation, genetic drift, selection) can lead to genetic differentiation and speciation
5. Define and explain natural selection
6. Interpret evolutionary relationship among organisms
7. Explain how evolutionary principles & ideas influence daily lives (e.g., GMOs, vaccination, antibiotic resistance, AIDS)

d. In addition to the above goals, Biology 101 students should gain an appreciation and basic understanding of the scientific process.

Biology 101 students should demonstrate competency in the following skills:
1. Retrieve information from a variety of sources (e.g., popular press, scientific papers)
2. Apply the scientific method
3. Critically evaluate data accurately (e.g., graphs, tables, text)
4. Critically evaluate claims rather than accept authoritative statements
5. Recognize the historical context of science
6. Differentiate between science and non-science
7. Analyze societal issues based on biologically sound principles
8. Justify opinions on social issues related to biology (e.g., stem cells, GMOs, vaccination)

REQUIRED TEXTS

• The bookstore has multiple options (both electronic and physical) available at a range of price points.
• If you decide to purchase from some place other than the bookstore, make sure that you purchase an option with LaunchPad access.
• For those of you that have access to the Second Edition, most of the material is the same, although some differences in pages, sections, and chapters exists. If you decide to use the Second Edition, you are responsible for identifying these differences by comparing the two editions. In order to complete the required coursework, you’ll also need to purchase LaunchPad access for the Third Edition.

GRADING STANDARDS, AND CRITERIA
In this course the plus/minus system will be used.
The grade breakdown is as follows:
≥ 95% = A+
≥ 90% = A (outstanding performance)
≥ 86% = A-
≥ 82% = B+

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Keep all assignments returned to you so that any discrepancies can be easily and fairly straightened out. Except in cases of actual error, all grades are final.

Exams will be retained, and may be reviewed in my office.

Except for extraordinary circumstances, homework assignments and exams will be graded within two weeks. Completion of in-class assignments will be recorded within one week. The research papers will take nearly a month to grade. All grades, other than Exam 3, will be entered into the TITANium gradebook no later than Monday, December 14.

**Attendance Policy**

Although attendance is not required, it is strongly encouraged, and you are likely to do better in the course if you attend regularly. Nearly every class period will include at least one in-class assignment (described below under “ASSIGNMENT DESCRIPTIONS”), and there will be no makeup for these assignments except in cases of DOCUMENTED emergencies, school-related functions, or illness.

**Late Assignments**

One late homework assignment is allowed in during the semester and will be reduced 10% each day after the assignment due date (up to 50%) unless approval for late work is given in advance. Late assignments will only be accepted up to one week after the original due date. ABSOLUTELY NO LATE RESEARCH PAPERS WILL BE ACCEPTED!

**Extra Credit Policy**

Extra credit is only available by submitting questions via the course forum on TITANium, as described below under “ASSIGNMENT DESCRIPTIONS.” To ensure that all students in the course have an equal opportunity to earn points, special extra credit assignments will not be offered.

**ASSIGNMENT DESCRIPTIONS**

**Exams (15% + 20% + 20% = 55%)**

There will be three exams given to assess your progress toward meeting the learning objectives & goals described above. Exams will be a mix of true/false (very few of
these), multiple-choice, fill in the blank, and short answer questions. The first exam is given a lower weight. Exams 2 and 3 will focus primarily on material covered since the previous exam, but they will include some application and synthesis questions that will require you to integrate knowledge from earlier in the semester.

Exam topics will be pulled from material discussed in class, the textbook, and any additional required readings assigned. Each class period (except the first day) will start off with a summary of the learning objective (or objectives) of the day. The best way to review your notes when studying for an exam is to ask yourself if you feel you’ve met the objective(s), and focus your study efforts on those areas where you don’t yet meet the objective(s). Study pairs or groups are outstanding ways to help you evaluate your knowledge.

It is extremely important to be on time for exams. Late arrival not only reduces the amount of time you have to work on an exam, but it disturbs all of your classmates who arrived on time. Please respect your fellow students by ensuring that you are ready to start each exam on time.

Unless special arrangements are made through the Disability Support Services (DSS) Office (see below under “Students with Special Needs”), no additional materials may be used during an exam. This includes (but is not limited to) calculators, cell phones, tablets, laptops, textbooks, notebooks, etc. Basically, if it’s not a writing implement or the exam paper, it needs to be shut, silenced, and put where it cannot be accessed or seen. Any violations will have the materials confiscated for the duration of the exam, and the incident reported as cheating (see below under “Academic Dishonesty Policy”).

If you must miss an exam, make ups are offered, at my discretion, only under certain circumstances, with written documentation provided.

- You make arrangements with me at least one week prior to the scheduled exam due to important, unavoidable conflicting activities (e.g., non-elective surgery, jury duty, officially representing CSUF at conferences, a member of a CSUF athletic team).
- Severe illness, personal tragedy, or unavoidable emergencies. Contact me ASAP if one of these unfortunate situations occurs, but please notify me within 24 hours of the exam, even if it’s just a simple one-line email letting me know you’ve had an emergency, and need to discuss the exam.
- Neither vacations nor work schedules are valid excuses for missing an exam. All exams (including Exam 3 during finals week) are offered during our normal class times, so please plan accordingly.
- Failure to follow the guidelines above will result in a zero grade for the exam.

**Research Paper (20%)**

To meet the General Education writing requirement, you will complete a 1,000 word (about 4 pages) research paper. To do well on this assignment, you will need to focus on the content, organization, and writing style of your paper. We’ll be discussing more
details of this paper, and you’ll be provided the grading rubric to guide you in preparing this assignment.

It is crucial that you understand that this research paper must be your own work, and written in your own words. I really don’t want to report anyone for academic dishonesty (see below under “Academic Dishonest Policy”), so please don’t plagiarize. The consequences can be severe, and the reward is miniscule. If you are confused about what constitutes plagiarism, please come see me before submitting your assignment. It’s a much more unpleasant conversation for both of us if we have to talk after you’ve already submitted something plagiarized.

Because of the time it will take me to grade this assignment, ABSOLUTELY NO late research papers will be accepted!

Homework (15%)

Homework assignments and quizzes will be assigned at various points throughout the semester. Details for each assignment will be provided both in-class, and on TITANium at least one week (usually more) prior to the due date. Please see the “Late Assignment” policy above for details on submitting assignments after the due date. Make-up assignments are only permitted, at my discretion, in cases of emergencies, or illness, and written documentation must be provided to be considered for a make-up.

In-class Assignments (10%)

Nearly every class session will include at least one in-class assignment. These assignments may include brief writing reflections, group discussions, questionnaires, etc. Although you will be asked to turn in something to indicate your participation, most of these assignments will not be graded, and credit will be given solely for completion. No makeup assignments are given for in-class work. At the end of the semester, a random number (somewhere between 85-90%) of these assignments will be selected to include in the grade, so missing one or two assignments will not affect your final grade.

Extra Credit

A major element of science is asking questions, so you have the opportunity to earn up to six extra credit points by posting questions to the course forum on TITANium. These questions may be about any topic of biological relevance.

• One point per thoughtful question. If you think I may question the biological relevance, then your post must include your reasoning for why you believe it to be relevant.

• Questions about items in the syllabus (my office hours, date/time of exams, points for an assignment, etc.) will not receive credit.

• Up to two questions may be posted for credit for each segment of the course, as defined by the exams. For example, you may post two questions prior to Exam 1, two after Exam 1, but before Exam 2, and two after Exam 2.
• To receive credit for a course segment, questions **must** be posted prior to the start of the class period in which an exam is given. In other words, if you post a question 10 minutes after you finish taking Exam 1, that question applies to the Exam 2 segment.

• I will post answers to all questions on the course forum on TITANium (sometimes the answer may be “check the syllabus”). In addition, some questions will be presented in class to foster discussions, clarify misconceptions, or highlight particularly interesting aspects of the topic of the day. No additional credit is given for questions presented in class.

• To allow time for me to answer all questions prior to Exam 3, all questions for the third segment of the course **must** be posted no later than 5:00 PM on Monday, December 14.

**ALTERNATIVE PROCEDURE FOR SUBMITTING WORK**

In case of technical difficulties with TITANium, the instructor will communicate with students directly through CSUF email, and assignments can be submitted through email, brought to office hours, or turned in to the Department of Biological Science office in MH-28.

**POLICY ON RETENTION OF STUDENT WORK**

Work submitted through the TITANium course site and shall be retained on the course website for a reasonable time after the semester is completed. In-class assignments that are submitted solely for completion will not be returned, but will be retained in my office. Please come see me during office hours if you wish to collect any of these assignments.

**TECHNICAL REQUIREMENTS**

Students are expected to

1. Have basic computer competency which includes:
   a. the ability to use a personal computer to locate, create, move, copy, delete, name, rename, and save files and folders on hard drives and on secondary storage devices such as floppy disks;
   b. the ability to use a word processing program that runs on a PC or Macintosh computer to create, edit, format, store, retrieve, and print documents;
   c. the ability to use an electronic mail system to receive, create, edit, print, save, and send an e-mail message with and without an attached file; and
   d. the ability to use an Internet browser to search the World Wide Web.

2. Have ongoing reliable access to a computer with Internet connectivity for regular course assignments

3. Use Microsoft® Office 2013 (for P.C.) or 2011 (for Mac) including Word, PowerPoint, and Excel to learn content and communicate with colleagues and faculty; have the ability to regularly print assignments

4. Maintain and regularly access a student email account (access multiple times per week)
5. Use Internet search and retrieval skills to complete assignments
6. Use TITANium to access course materials and complete assignments

Software for Students
Did you know you can get FREE and low-cost software for being an active CSUF students? Software can be requested from the CSUF Student Technology Services website.

UNIVERSITY INFORMATION

TITANium
As a registered student you are enrolled in TITANium. You may access TITANium for all your classes by clicking on your student portal, found on the CSUF website. There is a short video explaining TITANium access. Problems? Contact the student help desk at (657) 278-8888 or email StudentITHelpDesk@fullerton.edu.

Students with Special Needs
Please inform me during the first week of classes about any disability or special needs that you may have that may require specific arrangements related to attending class sessions, carrying out class assignments, or writing papers or examinations. According to California State University policy, students with disabilities must document their disabilities at the Disability Support Services (DSS) Office in order to be accommodated in their courses. Additional information can be found at the DSS website, by calling 657-278-3112 or email dsservices@fullerton.edu.

Academic Dishonesty Policy
Academic dishonesty includes such things cheating, inventing false information or citations, plagiarism, and helping someone else commit an act of academic dishonesty. It usually involves an attempt by a student to show a possession of a level of knowledge or skill, which he/she in fact does not possess. Cheating is defined as the act of obtaining or attempting to obtain credit for work by the use of any dishonest, deceptive, fraudulent, or unauthorized means. Plagiarism is defined as the act of taking the work of another and offering it as one’s own without giving credit to that source. An instructor who believes that an act of academic dishonesty has occurred (1) is obligated to discuss the matter with the student(s) involved; (2) should possess reasonable evidence such as documents or personal observation; and (3) may take whatever action (subject to student appeal) he/she deems appropriate, ranging from an oral reprimand to an F in the course. Additional information on this policy is available from University Policy Statement 300.021 found at the UPS section of the Academic Senate website.

Emergency Contact
In the event of emergency, contact the University Police at (657) 278-3333. Additional information can be found at the CSUF Emergency Preparedness website.

Library Support
The Pollak Library has many services to offer students, and the librarians will be happy to guide your efforts as you work on gathering sources for your research paper.
University Learning Center

The goal of the University Learning Center is to provide all CSUF students with academic support in an inviting and contemporary environment. The staff of the University Learning Center is carefully selected and trained to assist students with their academic assignments, general study skills, and computer user needs. The ULC is located in the Pollack Library North, 2nd Floor. The services that the ULC provide to the CSUF students include an open computer lab, tutoring, workshops, online tutoring, and collaborative learning. The online tutoring option allows students to submit their paper for constructive feedback. More information can be found on the University Learning Center website.

Writing Center

The Writing Center offers all registered CSUF students the opportunity to receive writing assistance. In half hour long tutorials, the students who come to the Writing Center will work with a tutor to create and/or improve specific assignments and, more importantly, to improve their overall writing skills. Students can expect to engage in conversation about their assigned topics, the point or thesis of their writing, ways to organize and develop ideas, or how to improve sentence structure and mechanics so as to convey the intended meaning of the essay. The Writing Center is located in MH 45, the basement of McCarthy Hall, on the campus of California State University, Fullerton; 657-278-3650. More information can be found on the Writing Center webpage.

TENTATIVE SCHEDULE

Week 1

August 24
  Introduction

August 26
  Scientific Thinking
  Reading: Chapter 1

Week 2

August 31
  Chemistry of Biology
  Reading: Chapter 2, skim 24
  Intro to Cells
  Reading: Chapter 3 (3.1-3.3)

September 2
  Cells
  Reading: Chapter 3 (3.4-3.22)
Week 3
September 7  LABOR DAY – NO CLASS
September 9
  DNA & Gene Expression
  **Reading:** Chapter 5 (5.1-5.11)

Week 4
September 14
  Biotechnology
  **Reading:** Chapter 5 (5.12-5.18)
September 16
  Chromosomes & Cell Division
  **Reading:** Chapter 6 (6.1-6.8, 6.14-6.18)

Week 5
September 21
  Cell Division (Meiosis)
  **Reading:** Chapter 6 (6.9-6.13)
  Intro to Genes & Inheritance
  **Reading:** Chapter 7(7.1-7.8)
September 23
  Genes & Inheritance
  **Reading:** Chapter 7 (7.9-7.17)

Week 6
September 28
  EXAM 1
September 30
  Life on Earth
  **Reading:** Chapter 10 (10.1-10.10)

Week 7
October 5
  Life on Earth
  **Reading:** Chapter 10 (10.11-10.18)
October 7
  Animal Diversity
  **Reading:** Chapter 11
Week 8

October 12
  Fungal Diversity
  **Reading:** Chapter 12 (12.13-12.16)
  
  Microbe Diversity
  **Reading:** Chapter 13

October 14
  Plant Diversity
  **Reading:** Chapter 12 (12.1-12.12)

Week 9

October 19
  Evolution
  **Reading:** Chapter 8 (8.1-8.4, 8.18-8.22)

October 21
  Mechanisms of Evolution
  **Reading:** Chapter 8 (8.5-8.17)

Week 10

October 26
  Evolution & Behavior
  **Reading:** Chapter 9

October 28
  EXAM 2

Week 11

November 2
  Plant Physiology
  **Reading:** Chapter 17, 18, 19 (19.1-19.3)

November 4
  Animal Physiology
  **Reading:** Chapter 20
Week 12

November 9
Circulation & Respiration
**Reading:** Chapter 21

Nutrition & Digestion
**Reading:** Chapter 21

November 11  VETERANS DAY – NO CLASS

Week 13

November 16
Nervous & Motor Systems
**Reading:** Chapter 23

Immunity & Health
**Reading:** Chapter 26

November 18
Populations
**Reading:** Chapter 14

*RESEARCH PAPER DUE*

Week 14

November 13 & 25  FALL BREAK – NO CLASS, HAPPY THANKSGIVING!

Week 15

November 30
Communities
**Reading:** Chapter 15 (15.9-15.17)

December 2
Ecosystems
**Reading:** Chapter 4, 15 (15.1-15.8)

Week 16

December 7
Conservation & Biodiversity
**Reading:** Chapter 16

December 9
Final Review (Optional, no for-credit in-class assignements)

Final Exam Week

December 16, 2:30 – 4:20 PM
EXAM 3